WHAT IS CLAIMED IS:

1. An expandable penetrating needle comprising;

a needle shaft having a substantially conical shape when in an unexpanded state, said needle shaft having a tip at its distal end and a base at its proximal end; and

a substantially hollow hub having a forward end at said base of said needle shaft and a second, open end;

wherein said needle shaft is divided into a plurality of segments, the length of which extend substantially from said base portion to substantially said tip portion; and

wherein said open end of said hub is designed to allow at least a portion of an additional device of substantially cylindrical shape to be inserted through said needle shaft;

whereby, as said additional device is inserted through said needle shaft, said segments thereof gradually separate, thereby causing an expansion of said needle shaft that allows said additional device to pass therethrough.

2. The expandable penetrating needle of claim 1, wherein at least a portion of said base of said needle resides within said forward end of said hub.

3. The expandable penetrating needle of claim 1, wherein at least a portion of said forward end of said hub resides within said base of said needle.

4. The expandable penetrating needle of claim 1, wherein said needle shaft and at least said forward end of said hub are of one-piece construction.

5. The expandable penetrating needle of claim 1, wherein said open end of said hub is adapted to mate with a portion of another device.

6. The expandable penetrating needle of claim 5, wherein said device is selected from the group consisting of a hypodermic needle hub, a hypodermic needle syringe, an evacuated collection tube needle hub, an evacuated collection tube holder, a catheter container hub, and a butterfly catheter needle hub.

7. The expandable penetrating needle of claim 1, wherein said segments extend through said tip.

8. The expandable penetrating needle of claim 1, wherein said segments terminate prior to said tip.

9. The expandable penetrating needle of claim 1, further comprising one or more apertures passing through said needle shaft along abutting edges of said segments thereof.

10. The expandable penetrating needle of claim 1, further comprising one or more apertures passing through one or more of said segments of said needle shaft.

11. The expandable penetrating needle of claim 1, wherein said additional device is selected from the group consisting of plastic tubing, a hypodermic needle, an evacuated collection tube needle, a catheter needle, a catheter, and an IV needle.

12. The expandable penetrating needle of claim 1, wherein at least a portion of said forward end of said hub permits viewing of a material passing therethrough.

13. The expandable penetrating needle of claim 1, further comprising a retention device for securing said expandable penetrating needle to said additional device of substantially cylindrical shape or to another device attached thereto.

14. The expandable penetrating needle of claim 1, wherein said hub is a part of said needle shaft.

15. The expandable penetrating needle of claim 1, wherein said hub is attached to said needle shaft.

16. An expandable penetrating needle for use in a venipuncture procedure, comprising:

a needle shaft divided into a plurality of separable segments and having a substantially conical shape when in an unexpanded state, said needle shaft forming a point at its distal end for penetrating a vein and forming a base at its proximal end for connection to a hub;

a substantially hollow hub of some length having a forward end connected to said base of said needle shaft and a second, open end, disposed substantially opposite said forward end; and

at least one aperture passing through said needle shaft near said distal end thereof, said at least one aperture for facilitating an initial flow of blood into said needle shaft while said needle shaft is in an unexpanded state;

wherein said design of said expandable penetrating needle permits at least a portion of an additional device of substantially cylindrical cross-section to be passed through said needle shaft after said point of said needle shaft is located in said vein; and

wherein said segments of said needle shaft are adapted to gradually separate as said additional device of substantially cylindrical cross-section is progressively inserted through said needle shaft, thereby causing a simultaneous expansion of both said needle shaft and an initial entryway into said vein produced by said point thereof.

17. The expandable penetrating needle of claim 16, wherein at least a portion of said base of said needle resides within said forward end of said hub.

18. The expandable penetrating needle of claim 16, wherein at least a portion of said forward end of said hub resides within said base of said needle.

19. The expandable penetrating needle of claim 16, wherein said needle shaft and at least said forward end of said hub are of one-piece construction.

20. The expandable penetrating needle of claim 16, wherein said open end of said hub is adapted to mate with a portion of another device.

21. The expandable penetrating needle of claim 20, wherein said device is selected from the group consisting of a hypodermic needle hub, a hypodermic needle syringe, an evacuated collection tube needle hub, an evacuated collection tube holder, a catheter container hub, and a butterfly catheter needle hub.

22. The expandable penetrating needle of claim 16, wherein said segments extend through said point.

23. The expandable penetrating needle of claim 16, wherein said segments terminate prior to said point.

24. The expandable penetrating needle of claim 16, wherein said at least one aperture is located along an abutting edge of said needle shaft segments.

25. The expandable penetrating needle of claim 16, wherein said at least one aperture passes through one or more of said segments of said needle shaft.

26. The expandable penetrating needle of claim 16, wherein said additional device of substantially cylindrical cross-section is selected from the group consisting of plastic tubing, a hypodermic needle, an evacuated collection tube needle, a multi-use needle, a catheter needle, an IV needle, and a catheter.

27. The expandable penetrating needle of claim 16, wherein at least a portion of said forward end of said hub permits viewing of a material passing therethrough.

28. The expandable penetrating needle of claim 16, further comprising a seal located in said hub, said seal for preventing blood entering said unexpanded needle shaft through said at least one aperture from exiting said open end of said hub.

29. The expandable penetrating needle of claim 16, wherein said hub and/or said needle shaft are adapted to retain said expandable penetrating

needle on said additional device of substantially cylindrical cross-section during insertion of said point into said vein.

30. The expandable penetrating needle of claim 16, further comprising a retention device for securing said expandable penetrating needle to said additional device of substantially cylindrical cross-section or to another device attached thereto.

31. The expandable penetrating needle of claim 16, further comprising a threaded collar rotatably attached to said hub near the open end thereof to engage a like-threaded portion of a section of tubing, rotation of said collar causing controlled movement of said tubing into or away from said needle shaft.

32. A method of performing venipuncture, comprising:

providing an expandable penetrating needle, said expandable penetrating needle comprising:

(a) a needle shaft divided into a plurality of separable segments and having a substantially conical shape when in an unexpanded state, said needle shaft forming a point at its distal end for penetrating a vein and forming a base at its proximal end for connection to a hub;

(b) a substantially hollow hub of some length having a forward end connected to said base of said needle shaft and a second, open end, disposed substantially opposite said forward end; and

(c) at least one aperture passing through said needle shaft near said distal end thereof, said at least one aperture for facilitating an initial flow of blood into said needle shaft while said needle shaft is in an unexpanded state;

installing said expandable penetrating needle to a patient, such that said point of said needle shaft properly penetrates a vein of said patient, thereby causing an initial entryway therein;

while securing said expandable penetrating needle, inserting an end of an additional venipuncture device through said open end of said hub and into said needle shaft; and

urging said end of said additional venipuncture device to pass through said needle shaft;

whereby progressive movement of said end of said additional venipuncture device through said needle shaft causes a gradual separation of said needle shaft segments, thereby causing said initial entryway into said vein to expand to a size that allows for substantially unimpeded passage of said end of said additional venipuncture device therethrough.

33. The method of claim 32, wherein said additional venipuncture device is selected from the group consisting of plastic tubing, a hypodermic needle, an evacuated collection tube needle, a multi-use needle, a catheter needle, an IV needle, and a catheter.

34. The method of claim 32, further comprising, after insertion of said additional venipuncture device into said vein, withdrawing said expandable penetrating needle from said patient and along said additional venipuncture device, and securing said expandable penetrating needle to said additional venipuncture device.